

DEFORMITIES

DEFORMITIES OF UPPER LIMB

I - Congenital undescended scapula: (Sprengel's shoulder):

- The scapula completes its descend from the neck by the 3rd month of foetal life, occasionally it remains high → elevated shoulder.
- Mild cases no treatment, Marked deformity - need surgery.

II - Klippel Feil syndrome:

- Bilateral failure of scapular descend with fusion of several cervical vertebrae → short neck (may be Webbed)
- restricted cervical mobility, usually left untreated.

III - Winged scapula:

- Due to paralysis of serratus anterior muscle e.g by injury of Long thoracic nerve that supply it.
- Characterized by backward scapular projection.

IV - Absent clavicle:

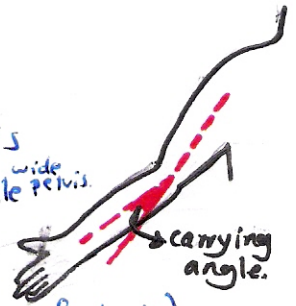
- Congenital absence of clavicle is due to failure of developed membranous bones as clavicle.
- Patient can bring his shoulders together in front of chest.

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V - Elbow deformities :

N.B.: Carrying angle is the angle between long axis of arm & forearm [Normal $10-15^\circ$] $\Rightarrow$ more in female ^{wide pelvis}.



① Cubitus valgus:

- Increase of carrying angle (hand moves away of body).
- Commonest cause is **non-union** of supracondylar fracture of humerus or arrest of growth at lateral side by * fracture of lateral condyle of humerus.
- May complicated by delayed ulnar neuritis.
- No treatment unless ulnar N. palsy $\rightarrow$ transport tendon in front of the elbow.

② Cubitus varus:

- Decrease carrying angle.
- Commonest cause is **malunion** of supracondylar fracture of humerus.
- May treated by wedge osteotomy of lower humerus.

NB: Tennis elbow: is tenderness over lateral epicondyle of humerus due to pull by extensor muscles attached to it.

NB: Golfer elbow: is tenderness over Medial epicondyle of humerus due to pull by flexor muscles attached to it.

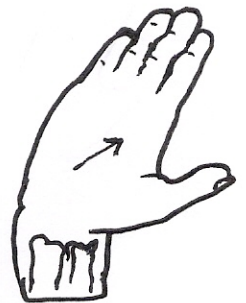
VI - Hand & Wrist deformities :

① Mad-E-Lung deformity:-

- Radial deviation of hand due to arrest of growth of radius. [ttt by excision of lower ^{end} ulna]

② Duputrens contracture:

- Flexion deformity of fingers due to progressive contraction of palmar fascia [ttt by fasciotomy or excision of palmar fascia]



③ Others:-

- Polydactyl (extra finger), Syndactyl (fused fingers) and Macrodactylia (giant finger) $\rightarrow$ Commonest is polydactyl.

DEFORMITIES OF LOWER LIMB

[A] CONGENITAL HIP DISLOCATION :- (CDH)

* Incidence:

New name : Developmental Dysplasia of hip [DDH]

- About 1:1000 newborn babies, more in girls [$\text{♀}:\text{♂} = 6:1$]
- More in the left side, 1/3 of cases are bilateral.

* Aetiology:

① Genetic factors :- as

- Genetic joint laxity.
- Genetic dysplasia of femoral head.
- Acetabular dysplasia (shallow acetabulum).

② Hormonal:-

- Relaxin hormone $\rightarrow$ hormonal joint laxity.
- the relaxin hormone is produced by female fetal uterus in response to circulating maternal estrogen & progesterone. (this explains why 6 times in female & bilateral cases).

③ Breech presentation

- ##### ④ Post natal posture as swaddling (hip extended fully) so that it is common in india, North africa but less common in African Negroes who carry their babies across their backs with hips abducted.

* Pathology:

- Acetabulum is unusually shallow & undeveloped.
- Acetabular labrum is often turned.
- Acetabulum & femoral epiphysis maturity is retarded.
- Femoral head is displaced upward & laterally
- Femoral neck is short & anteverted
- Joint capsule is elongated.

* Clinical Picture:

- At birth by Ortolani & Barlow test⁺, other wise may not noticed until child start walking $\rightarrow$ Waddling gait.
- Delayed standing & walking.

- On Examination :-

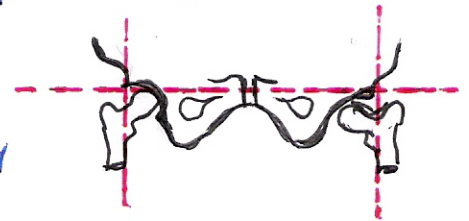
- Unilateral cases → Asymmetrical buttock folds with extra-fold on the thigh, Limb shorter than other & externally rotated
- Limitation of abduction on flexion. & Trendelenburg test is always positive.
- Bilateral cases → Widening of perineum and all joint movement are full (except abduction on flexion)
- May be there is abnormal mobility of the affected limb called telescopic movement.

* Investigation :-

- A. X-ray - Ossification centre of femoral head is delayed & retarded.
- Acetabulum is shallow & deformed head & neck.
 - Femoral head is displaced upward & laterally and this displacement can be seen by 3 lines :-

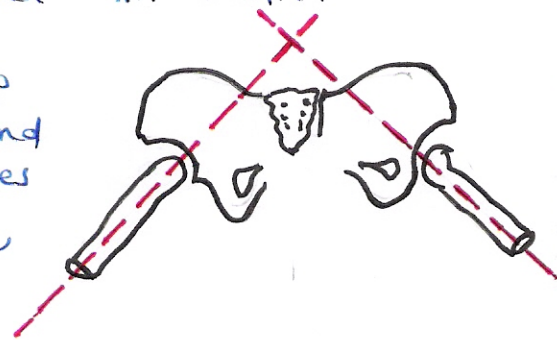
① Berkin's line:

- Vertical & horizontal lines across the lateral edge of acetabulum → Normally the head in lower inner quadrant
- Not used for < 4 months as head is not ossified.



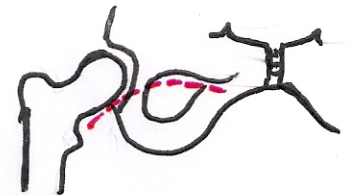
② Von - Rosen line :-

- used in early cases, by x-ray hip while baby in abduction of 45° and internal rotation and draw 2 lines along long axis of both femur, the 2 lines normally meet in centre of pelvis
- in DDH meet in contralateral side.



③ Shenton's line :-

- Line drawn in lower border of superior pubic ramus & lower border of femoral neck are continuous with each other normally,
- break in shenton's line indicate DDH



- B. Ultrasound :- visualize the shape of the acetabulum and the position of femoral head.

*Treatment of DDH :-

treatment of DDH (Developmental dysplasia of hip) depends on age:-

① From 0-3 week :-

- Advise mother to use double napkin and not swaddle baby.
- Most cases become stable spontaneous.
- Follow up by x-ray, If still unstable move to other group.

② From 3 wk - 6 months :-

- Splint both hips by Von-Rosen splint (H-shaped) in moderate abduction (if severe $\rightarrow$ avascular necrosis HOF) for 3 months, if after 3 months still unstable do reduction under GA (closed reduction) then plaster 3 months in H-shaped plaster. $\therefore$



③ From 6 months - 18 months :-

- Some advise closed reduction & fixation in flexion, abduction & external rotation (Frog's position) the plaster extends from umbilicus to toes.
- Others do open reduction & immobilization for 3 months as closed reduction here may lead $\rightarrow$ avascular necrosis of HOF (as force needed to reduce head of femur "HOF" may $\rightarrow$ avascular Necrosis)



④ From 18 month to Limited age :-

- Limited age is age at which no treatment is advised as any intervention may cause avascular necrosis
- Limited age is 6 years if bilateral & 10 yr if unilateral.
- Treatment in this age group (18m - limited age) is open reduction with plaster.

⑤ Adult age :-

- usually the patient have pain due to osteoarthritis so treat osteoarthritis (e.g total hip replacement).

B COXA VARA:

- Decrease angle between long axis of neck & shaft of femur to $\leq 90^\circ$ "normal angle 120° "



* Causes:-

- 1- Congenital coxa vara.
- 2- Perthes disease (infarctional osteochondritis of femoral head).
- 3- Slipped upper femoral epiphysis (SUFE).
- 4- fracture and dislocation of hip or NOF (neck of femur).
- 5- Bone softening disease: as Rickets, hyperparathyroidism, etc.
- 6- inflammatory as arthritis.

* Clinical Picture:

- pain, stiffness, Limping.
- Positive Trendelenberg's sign.

* Treatment:

- Treat underlying cause, late cases $\rightarrow$ abduction osteotomy.

NB:- Coxa valga is very rare, it is $\uparrow$ angle $> 140^\circ$, may be congenital or paralytic, treated by subtrochanteric osteotomy if indicated (as it usually asymptomatic).

C GENU VALGUM, VARUM & RECURVATUM,

① Genu valgum:- (Knock knees)

- Fixed abduction of legs from midline.
- Causes are idiopathic (commonest & bilateral), $\times$ dislocation, inflammatory (osteoarthritis) or bone softening.
- treatment: is conservative (physiotherapy + elevation of inner border of shoes) or operative (supracondylar osteotomy).



② Genu varum:- (Bow legs).

- Lateral bowing deformity of leg, caused as genu valgum.
- ttt - no needed if idiopathic as usually self limiting.
- if severe or persist in adult by epiphysiodesis to arrest growth or upper tibial osteotomy after 5 yrs of age.

③ Genu recurvatum:- (Back knees):

- hyperextended knee $\rightarrow$ backward convexity.
- ~~can~~ normal in female (up to 15°) or due to ligament laxity.